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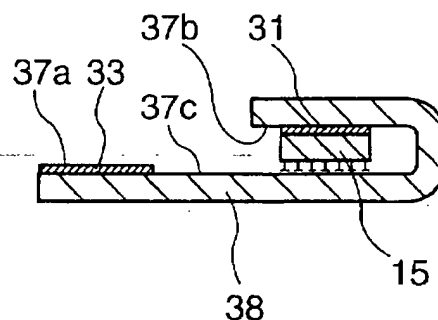
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(54) 【発明の名称】 止着テープ及びその製造方法、並びにこの止着テープを用いた使い捨ておむつ

## (57) 【要約】

【課題】 止着テープの製造過程において、止着テープの雄側係合片15の係合面が露出していると、製造機械等に引っかかる恐れがある。そこで雄側係合片15を内側に折り返し、接着剤で仮接着する手法が提案されている。しかし接着剤を塗布する製造が新たに必要となる。そこで本発明は、係合面が製造機械等に引っかからず、且つ製造工程が煩雑ではない止着テープ及びその製造方法、並びにこれを用いた使い捨ておむつを提供することを目的とする。

【解決手段】 基材シートが、雄側係合片15に係合可能なループを備えた不織布からなる。雄側係合片15と取付部37aの間で露出した不織布(仮係合箇所37c)に、雄側係合片15を仮係合させる。



## 【特許請求の範囲】

【請求項1】 基材シート的一方端に形成された折返し片に面ファスナーの雄側係合片が設けられ、前記基材シートの他方側に他部品への取付部を備えた止着テープにおいて、  
前記基材シートは、少なくとも前記折返し領域に前記雄側係合片に係合可能な不織布を有していることを特徴とする止着テープ。

【請求項2】 前記基材シートが、不織布で構成されている請求項1に記載の止着テープ。

【請求項3】 前記基材シートが、フィルムと不織布とを積層して構成されている請求項1に記載の止着テープ。

【請求項4】 前記不織布は、ポリエステル系合成繊維からなり、目付が30～100g/m<sup>2</sup>である請求項2または3に記載の止着テープ。

【請求項5】 前記折返し領域に設けられる不織布は、前記折返し片の折返し線と平行な折り畳み線が形成されたものである請求項1～4のいずれかに記載の止着テープ。

【請求項6】 前記不織布は熱融着性繊維から構成され、  
該不織布に、前記折り畳み線を残して、該折り畳み線と直交する方向の線状熱融着部が梯子段状に設けられたものである請求項5に記載の止着テープ。

【請求項7】 請求項1～6のいずれかに記載の止着テープを製造する方法であって、  
不織布の広幅帯状体、またはフィルムと不織布とを積層した多層シートの広幅帯状体に、面ファスナーの雄側係合片の細帯体をその係合面とは反対側の面を前記広幅帯状体の長手方向に沿って幅方向中央部に貼着する工程と、  
前記雄側係合片細帯体貼着幅より長い振幅のジグザグ線に沿って切断することによって折返し片を形成する工程と、  
雄側係合片形成側を内側にして前記折返し片を折り返して不織布に係合する工程と、  
分離された広幅帯状体を長手方向に任意の間隔で切断する工程とを有することを特徴とする止着テープの製造方法。

【請求項8】 請求項1～6のいずれかに記載の止着テープが一对、おむつの背側或いは腹側に設けられたものであることを特徴とする使い捨ておむつ。

## 【発明の詳細な説明】

【0001】

【発明の属する技術分野】本発明は止着テープ及びその製造方法に関するものであり、並びにこの止着テープを用いた使い捨ておむつに関するものである。

【0002】

【従来の技術】使い捨ておむつや各種衣料品等に止着テ

ープが用いられる場合があるが、止着テープのうちでも面ファスナーを用いたものは、何度でも着脱が可能であるという利点を有することから好適な止着テープである。

【0003】図8の(a)は上記止着テープを用いた使い捨ておむつの一例を示す展開平面図であり、おむつの身体側面(身体に接する側の面)を手前側にして表している。また図8の(b)は上記止着テープの一例を示す正面図である。

10 【0004】使い捨ておむつ10は、吸収体22を挟んで液不透過性(或いは液不透過性透湿性)のバックシート21と液透過性のトップシート23が積層されたものであって、その外形は概ね長方形の長辺側の中央が窪んだ砂時計型をしている。この窪み部分が股部14となり、該股部14に連なって広がっている一方が背側部11で、他方が腹側部13である。上記背側部11の両翼片11aの先端近傍には止着テープ12が設けられている。

20 【0005】該止着テープ12は、ポリプロピレン-ポリエチレン複合フィルム(ポリエチレンフィルムを2枚のポリプロピレンフィルムで挟む様に積層して共押しを行ったフィルム)からなる基材シート17上に面ファスナーの雄側係合片15が取り付けられたものであり、基材シート17の一方端部分が摘み部17bとなり、他方端部分がおむつ本体(翼片11aの先端近傍)との取付部17aとなる。尚上記基材シート17としては上記ポリプロピレン-ポリエチレン複合フィルムの他、ポリエチレンテレフタレート製フィルム等も用いられる。

30 【0006】使い捨ておむつ10の上記腹側部13の反身体側面(外側面)には上記雄側係合片15と係合可能な雌側係合片16が設けられており、該雌側係合片16に上記雄側係合片15に係合することによって着用できる様になっている。尚上記雄側係合片15としては鉤型係合素子を植え付けた係合片やマッシュルーム型係合素子を植え付けた係合片等が挙げられ、雌側係合片16としてはループ型係合片等が挙げられる。

【0007】図9は従来の上記止着テープ12の製造方法を説明するための平面図である。

40 【0008】まず長尺のポリプロピレン製フィルム(広幅帯状体)28上に、その幅方向のほぼ中央位置に細長い雄側係合片細帯体25を接着する。次いで該雄側係合片細帯体25を架け渡す様に蛇行した切断線27に沿ってカットし、左右に分割する。そして幅方向の切断線26に沿ってカットして、2つの雄側係合片15を有する個々の止着テープ12とする。

【0009】

【発明が解決しようとする課題】ところで上記止着テープの製造においては、製造ライン上を連続的に進んで雄側係合片の取り付けや切断等が行われているが、この際上記雄側係合片細帯体25(雄側係合片15)の係合面

が露出状態にあると、該係合面が製造機械等に引っかかり、円滑な製造流れを実現できなくなる恐れがある。

【0010】また上記使い捨ておむつの製造過程においても、製造ライン上を連続的に進んで各種部品の取付け、折り畳み等が行われており、この際上記雄側係合片15の係合面が露出状態にあると、上記と同様に該係合面が製造機械やおむつの他の部品に引っかかって円滑な製造流れを実現できないという恐れがあり、更におむつを製造機械に巻き込んでしまう事故等を生じる懸念がある。

【0011】そこで上記雄側係合片の近傍に仮止め用接着剤を塗布し、上記雄側係合片を内側にして折り畳み、上記仮止め用接着剤で仮接着するという手法が提案されている。この場合は雄側係合片15の係合面が露出しないから、該係合面が製造機械等に引っかかるという事故が防止される。

【0012】しかしながら上述の如く仮止めするにあたっては予め仮止め用接着剤を塗布する工程が新たに必要であり、その為に製造工程が煩雑になるという問題があり、またコストもかかる。

【0013】そこで本発明においては、雄側係合片の係合面が製造機械等に引っかからず、円滑な製造が可能であり、且つ製造工程が煩雑ではなく、製造コストがあまりかからない止着テープ及びその製造方法を提供することを目的とする。加えてこの止着テープを用いた使い捨ておむつを提供することを目的とする。

【0014】

【課題を解決するための手段】本発明に係る止着テープは、基材シート的一方端に形成された折返し片に面ファスナーの雄側係合片が設けられ、前記基材シートの他方側10に他部品への取付部を備えた止着テープにおいて、前記基材シートが、少なくとも前記折返し領域に前記雄側係合片に係合可能な不織布を有していることを要旨とする。

【0015】また本発明に係る止着テープの製造方法は、不織布の広幅帯状体、またはフィルムと不織布とを積層した多層シートの広幅帯状体に、面ファスナーの雄側係合片の細帯体をその係合面とは反対側の面を前記広幅帯状体の長手方向に沿って幅方向中央部に貼着する工程と、前記雄側係合片細帯体貼着幅より長い振幅のシグザグ線に沿って切断することによって折返し片を形成する工程と、雄側係合片形成側を内側にして前記折返し片を折り返して不織布に係合する工程と、分離された広幅帯状体を長手方向に任意の間隔で切断する工程とを有することを要旨とする。

【0016】この様に雄側係合片は、折返し領域の不織布（雄側係合片と取付部の間における基材シートの不織布）に仮係合され、雄側係合片の係合面が露出しない状態となるから、雄側係合片の係合面が製造機械に引っかかる等といったことが生じず、よって円滑な製造流れを

実現でき、加えて仮止め用接着剤を塗布する工程が不要であるから、製造が簡単となる。

【0017】上記基材シートとしては、不織布単独で構成されたものや、不織布と他のフィルム等を積層したもの、またフィルムを挟んで両面に不織布を積層して構成されているもの等が挙げられる。

【0018】このうちでも不織布単独の基材シートは、良好な通気性を示すから、蒸れを防止する効果がある。一方従来の様にポリプロピレン-ポリエチレン複合フィルム等を基材シートに用いたものにあっては通気性が悪いので、例えば上述の様に使い捨ておむつに使用した場合に、止着テープ部分が蒸れる懸念があった。尚蒸れを防止する目的で、複数の孔を設けた通気性フィルムを基材シートに用いることが考えられるが、上記通気性フィルムを用いると高価となる上、上記通気性フィルムにはコシがあまりなく、柔らかすぎて製造が困難となる懸念がある。

【0019】また上記止着テープにおいては、前記基材シートの反雄側係合片形成面（即ち雄側係合片が設けられていない方の面）に、前記雄側係合片に係合可能な不織布が露出したものであることが好ましい。

【0020】例えば下記の如く止着テープを使い捨ておむつに使用する場合には、一般におむつの背側の左右に1対の止着テープを設けるが、このおむつを着用するにあたり、この止着テープを用いると、上側の止着テープを下側の止着テープの反身体側面において上記不織布に係合することも可能であるから、使用者が細すぎて左右の止着テープが交差するときにも、適切に止着テープを止めることができる。

【0021】更に本発明に係る止着テープにおいて、前記不織布が、ポリエステル系合成繊維からなり、目付が30～100g/m<sup>2</sup>であることが好ましい。

【0022】上記基材シートが上記従来のポリプロピレン製フィルムや上記孔を有するフィルム、また非常に薄い不織布の場合では、基材シートが柔軟過ぎ、この為に折返し片を折り返す際に、捻れや歪みを生じる恐れがあるが、上述の様に目付30～100g/m<sup>2</sup>のポリエステル系合成繊維製不織布の場合では、適度な剛性（コシ）を有するから捻れや歪みを生じる懸念が少ない。上記不織布の目付としてより好ましくは50g/m<sup>2</sup>以上、70g/m<sup>2</sup>以下である。

【0023】加えて本発明に係る止着テープにおいて、前記折返し領域に設けられる不織布が、前記折返し片の折返し線と平行な折り畳み線が形成されたものであることが好ましい。尚上記「折り畳み線」とは、後述するように例えば折返し線と直交する線状の熱融着部を梯子段状に形成し、且つこの梯子段状の線状熱融着部の群を上記折返し線と平行して複数群設けた場合に、この線状熱融着部群と線状熱融着部群の間、即ち上記線状熱融着部がオーバーラップしない領域（図1（b）のA、B、C

…参照)が折返し線と平行に形成されるが、この部分(図1(b)のA、B、C…)等を言う。

【0024】この様に予め折り畳み線を形成しておくことにより、雄側係合片の係合面を隠すにあたり所定の位置で円滑に折り畳むことができるからである。

【0025】また本発明に係る止着テープにおいて、前記不織布は熱融着性繊維から構成され、該不織布に、前記折り畳み線を残して、該折り畳み線と直交する方向の線状熱融着部が梯子段状に設けられたものであることが好ましい。

【0026】上記線状熱融着部は熱融着されていない部分に比べ硬くなっているから、該熱融着部では折れずに、隣接する非熱融着部で折れることになる。即ち非熱融着部である折り畳み線の方が他の部分よりも折れ易い状態となり、よって該折り畳み線部分で円滑に折り畳むことができる。

【0027】また本発明に係る使い捨ておむつは、前記止着テープが一對、おむつの背側或いは腹側に設けられたものであることを要旨とする。

【0028】

【発明の実施の形態】図1の(a)及び図2は本発明に係る止着テープの製造方法の一例を説明するための正面図であり、図1の(b)は基材シートの拡大正面図である。また図3は図1(a)に示すX-X線断面図で、図4は図2に示すY-Y線断面図である。

【0029】基材シートの原反として、目付60g/m<sup>2</sup>で、長尺のポリエステル系合成繊維製不織布の広幅帯状体38を用い、該不織布広幅帯状体38に長手方向と直交する方向の線状熱融着部40を梯子段状に形成する。この梯子段状の線状熱融着部40の一群(40a、40b、40c…)は、図1の(b)に示す様に上記広幅帯状体38の幅方向に並列して複数群形成されている。尚上記不織布広幅帯状体38はその両面とも雄側係合片に係合可能なループを備えている。

【0030】この不織布広幅帯状体38上にその幅方向中央部に細長い雄側係合片細帯体25を接着剤で貼着する。また不織布広幅帯状体38の両端近傍にホットメルト接着剤を塗布し、他部品との取付部37aとする。尚図3、4中の31、33は接着剤層である。

【0031】次いで該雄側係合片細帯体25(雄側係合片15)を架け渡す様に、細帯体25の貼着幅より長い振幅で蛇行する切断線(ジグザグ線)27に沿ってカットする(図1(a))。尚雄側係合片15と取付部37aの間の不織布(基材シート)が仮係合箇所(折返し領域)37cとなる。また雄側係合片15より先の不織布(基材シート)部分が摘み部37bである。

【0032】その後上記線状熱融着部40の各群40a、40b、40c…間の折り畳み線(2点鎖線で示すA、B、C…)のうち、上記雄側係合片15取付部分の付け根近傍における任意の折り畳み線で、雄側係合片1

5を内側にして折り畳み、該雄側係合片15を仮係合箇所37cの不織布に仮係合する(図2)。

【0033】この折り畳みのとき、線状熱融着部40は熱融着されていない部分に比べて硬くなっているから、この線状熱融着部40の箇所では折れず、比較的柔らかい折り畳み線A、B、C…で折れて畳まれることになる。この折り畳み線A、B、C…は雄側係合片15と取付部37aが対向する間に直線状に形成されているから、該折り畳み線A、B、C…に沿って円滑に折り畳むことができる。尚これら折り畳み線A、B、C…のうちのいずれにおいて折り畳むかは、走行する帯状体38に当てるガイド位置を変更することによって選択することができる。

【0034】次いで幅方向の切断線26に沿ってカットして、2つの雄側係合片15を有する個々の止着テープ32とする。

【0035】上述の様に雄側係合片15は切断線27で切断した直後に、折り畳まれ雄側係合片15の係合面が隠れるから、製造機械等に係合面がひっかかる恐れがなくなる。また雄側係合片15が仮係合箇所37cの不織布にひっかって仮係合されているから、製造過程における振動や風等ではこの仮係合は外れない。

【0036】加えて上記の様に折り畳むことにより、止着テープの幅が狭くなるから、これより下流側の製造空間が小さくなり、設備設置空間の削減を図ることもできる。

【0037】図5は上記止着テープ32を取り付けた使い捨ておむつを示す部分平面図であり、背側部11の左側の翼片11aの付近を、おむつの身体側面(身体に接する側の面)を手前側にして表した図である。また図6はこの使い捨ておむつを着用した状態を示す正面図である。尚図1～4、8と同じ構成部分については同一の符号を付して重複説明を避ける。

【0038】使い捨ておむつの製造过程中、トップシート23とバックシート21を積層する際に、上記止着テープ32の取付部37aをこれらシート23、21の間に挟む様にして配置し、予め塗布したホットメルト接着剤により接着するか、或いは該接着剤に代えて超音波接着や熱エンボス接着により接着する。

【0039】使い捨ておむつの製造中においても、上記止着テープ32は雄側係合片の係合面が露出してないから、製造機械やおむつの部品等にひっかかる懸念がない。従って円滑な製造が実現できる。

【0040】使い捨ておむつの着用にあたっては、摘み部37cを摘んで雄側係合片15の仮係合箇所37cとの仮係合を剥がし、おむつ腹側部13の雌側係合片16に係合することにより着用する。

【0041】止着テープ32は基材シートが不織布で構成され、通気性が良好であるから、大型の止着テープ32を用いた場合であっても、着用中に蒸れることがあま

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りなく、快適に着用できる。また雄側係合片15を雌側係合片16に係合する操作の直前に、仮係合箇所37cとの仮係合を剥がす様にすれば、雄側係合片15の係合面が他の衣服部分等に引っかかるといったことを防止できる。

【0042】図7は細い人が上記使い捨ておむつを着用した場合を示す正面図である。この様に細い人の場合は止着テープ32が腹部側で交叉してしまい、上記雌側係合片16に雄側係合片15に係合できないこととなる。しかし上記止着テープ32の基材シート（不織布38）は反身体側面（雄側係合片が貼着していない方の面）にも雄側係合片に係合可能であるから、止着テープ32が交叉しても、対向する止着テープ32の反身体側面に係合可能であり、よって着用することが可能となる。

【0043】以上の様に本発明に係る止着テープ及びその製造方法、並びにこの止着テープを用いた使い捨ておむつに関して、例を示す図面を参照しつつ具体的に説明したが、本発明はもとより図示例に限定される訳ではなく、前記の趣旨に適合し得る範囲で適当に変更を加えて実施することも可能であり、それらはいずれも本発明の技術的範囲に包含される。

【0044】

【発明の効果】本発明に係る止着テープ及びその製造方法は、止着テープの雄側係合片の係合面が製造機械等に引っかからず、円滑な製造が可能であり、しかも製造工程が煩雑ではなく、また製造コストがあまりかからない。

【0045】また本発明に係る使い捨ておむつは、該おむつの製造中において止着テープの係合面が露出していないから、製造機械やおむつの部品等に引っかかる懸念がなく、円滑に製造することができる。

【図面の簡単な説明】

【図1】（a）本発明に係る止着テープの製造方法の一例を説明するための正面図、（b）は基材シートの拡大正面図。

\*【図2】本発明に係る止着テープの製造方法の一例を説明するための正面図。

【図3】図1（a）に示すX-X線断面図。

【図4】図2に示すY-Y線断面図。

【図5】本発明の一例に係る止着テープを取り付けた使い捨ておむつを示す部分平面図。

【図6】図5に示す使い捨ておむつを着用した状態を示す正面図。

【図7】図5に示す使い捨ておむつを細い人が着用した場合を示す正面図。

【図8】（a）は従来の止着テープを用いた使い捨ておむつの一例を示す展開平面図、（b）は従来の止着テープの一例を示す正面図。

【図9】従来の止着テープの製造方法を説明するための平面図。

【符号の説明】

11 背側部

11a 翼片

13 腹側部

15 雄側係合片

16 雌側係合片

21 バックシート

22 吸収体

23 トップシート

25 雄側係合片細帯体

26, 27 切断線

31, 33 接着剤層

32 止着テープ

37a 取付部

37b 摘み部

37c 仮係合箇所

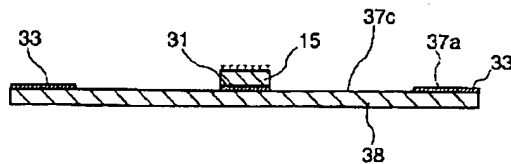
38 不織布広幅帯状体

40 線状熱融着部

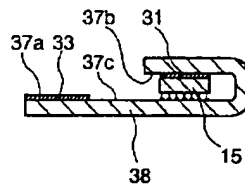
40a, 40b, 40c 線状熱融着部群

\* A, B, C 折り畳み線

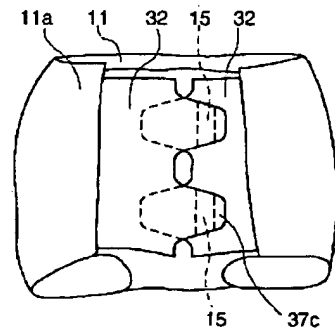
【図3】



【図4】



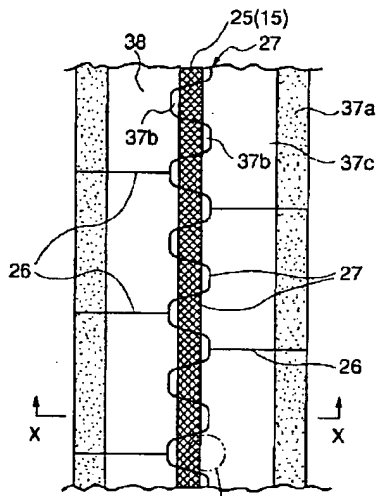
【図7】



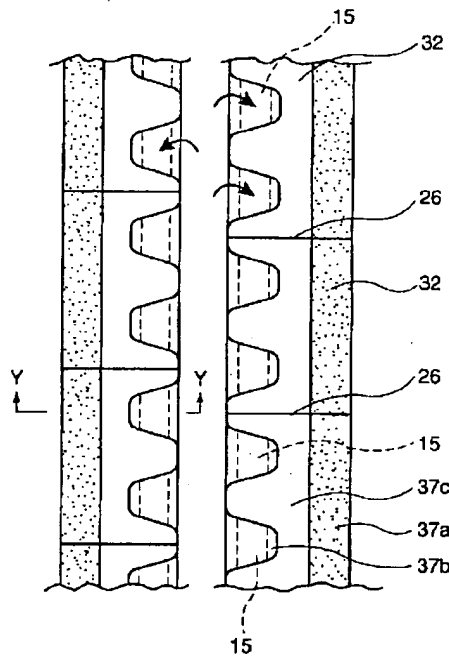
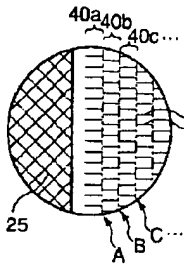
【図1】

【図2】

(a)

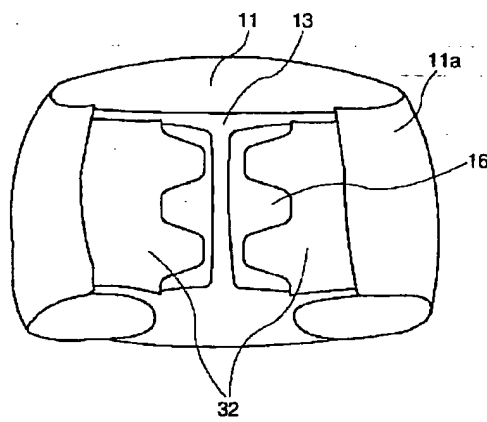
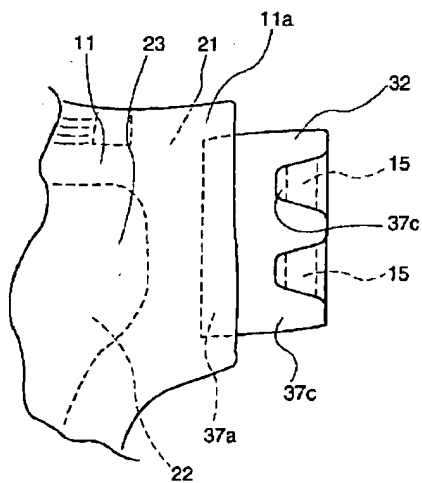


(b)

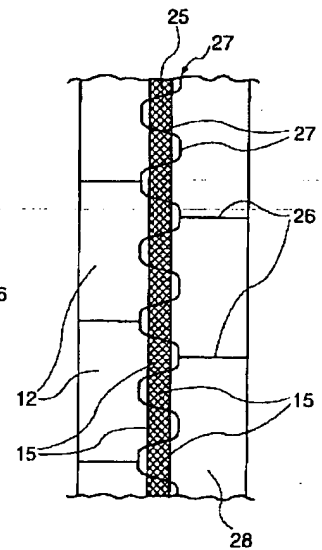


【図5】

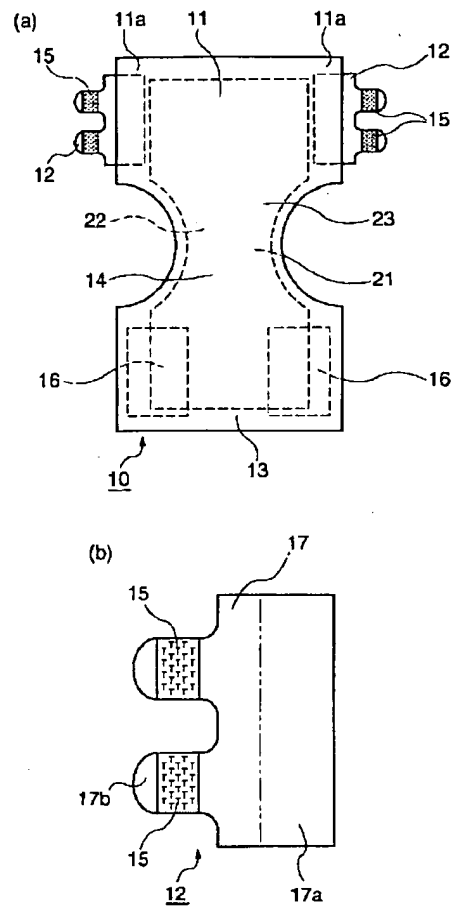
【図6】



【図9】



【図8】



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3B100 DA01 DB02  
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CE00 FA08 FA09

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(51) [The 7th edition of International Patent Classification]

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601

A61F 13/49

13/56

A44B 18/00

C09J 7/00

[FI]

A44B 21/00 611 J

601 A

18/00

C09J 7/00

A41B 13/02 H

[Request for Examination] Un-asking.

[The number of claims] 8

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[Patent Attorney]

[Name] Otari Etsuji (besides one person)

[Theme code (reference)]

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4J004

[F term (reference)]

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3B100 DA01 DB02

4J004 AA15 AB03 CA04 CC02 CC03 CE00 FA08 FA09

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Summary

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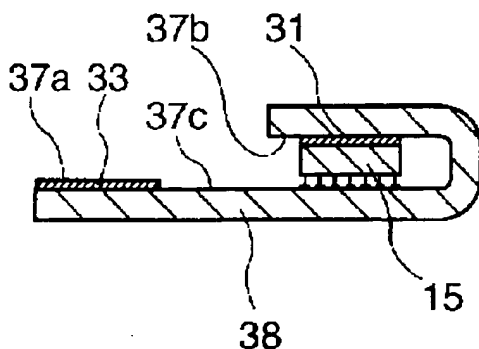
(57) [Abstract]

[Technical problem] In the manufacture process of a firm attachment tape, when the engagement side of the piece 15 of male side engagement of a firm attachment tape is exposed, there is a possibility that it may be caught in a manufacture machine etc. Then, the piece 15 of male side engagement is turned up inside, and the technique of carrying out temporary adhesion with adhesives is proposed. However, the manufacture which applies adhesives is newly needed. Then, this invention aims at an engagement side not being caught in a manufacture machine etc., and a manufacturing process offering the firm attachment tape which is not complicated, its manufacture method, and the disposable diaper using this.

[Means for Solution] A base-material sheet consists of a nonwoven fabric equipped with the loop which can engage with the piece 15 of male side engagement. The nonwoven fabric (temporary engagement part 37c) exposed between the piece 15 of male side engagement and attachment section 37a is made to carry out temporary engagement of the piece 15 of male side engagement.

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## CLAIMS

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### [Claim(s)]

[Claim 1] It is the firm attachment tape characterized by the aforementioned base-material sheet having at least the nonwoven fabric which can engage with the aforementioned piece of male side engagement to the aforementioned cuff field in the firm attachment tape of a base-material sheet which was formed in the edge on the other hand, and which the piece of male side engagement of a field fastener was prepared in the piece by return, and equipped the other side of the aforementioned base-material sheet with the attachment section to other parts.

[Claim 2] The firm attachment tape according to claim 1 on which the aforementioned base-material sheet consists of nonwoven fabrics.

[Claim 3] The firm attachment tape according to claim 1 on which the aforementioned base-material sheet is constituted by carrying out the laminating of a film and the nonwoven fabric.

[Claim 4] The aforementioned nonwoven fabric is a firm attachment tape according to claim 2 or 3 whose eyes it consists of a polyester system synthetic fiber, and are 30 - 100 g/m<sup>2</sup>.

[Claim 5] The nonwoven fabric prepared in the aforementioned cuff field is a firm attachment tape according to claim 1 to 4 on which a folding line parallel to the cuff line of the aforementioned piece of a cuff is formed.

[Claim 6] the line of the direction which the aforementioned nonwoven fabric consists of heat weld nature fiber, and leaves the aforementioned folding line to this nonwoven fabric, and intersects perpendicularly with this folding line -- the firm attachment tape according to claim 5 on which the heat weld section is prepared in the shape of a stair

[Claim 7] How to manufacture the firm attachment tape according to claim 1 to 6 characterized by providing the following It is the process which the engagement side meets the double width band form of a nonwoven fabric, or the double width band form of the multilayer sheet which carried out the laminating of a film and the nonwoven fabric in the thin belt of the piece of male side engagement of a field fastener, meets the longitudinal direction of the aforementioned double width band form in the field of an opposite side, and is stuck on a crosswise center section. The process which forms a piece by return by cutting along with the continuous thin with zigzags of an amplitude longer than the aforementioned piece of male side engagement thin belt attachment width of face The process which carries out the piece formation side of male side engagement inside, turns up the aforementioned piece of a cuff, and engages with a nonwoven fabric The process which cuts the separated double width band form at arbitrary intervals to a longitudinal direction

[Claim 8] The disposable diaper characterized by preparing a firm attachment tape according to claim 1 to 6 in the backside or venter of a couple and a diaper.

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**DETAILED DESCRIPTION**

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[Detailed Description of the Invention]

[0001]

[The technical field to which invention belongs] this invention relates to the disposable diaper using [ and ] this firm attachment tape about a firm attachment tape and its manufacture method.

[0002]

[Description of the Prior Art] Although a firm attachment tape may be used for a disposable diaper, various clothing, etc., the thing using the field fastener is a suitable firm attachment tape from having the advantage that it can detach and attach any number of times among firm attachment tapes.

[0003] (a) of drawing 8 is the expansion plan showing an example of a disposable diaper which used the above-mentioned firm attachment tape, and expresses by making into a near side the body side (field of the side which touches the body) of a diaper. Moreover, (b) of drawing 8 is the front view showing an example of the above-mentioned firm attachment tape.

[0004] On both sides of the absorber 22, the laminating of the backseat 21 of liquid impermeability (or liquid impermeability moisture permeability) and the top sheet 23 of liquid permeability is carried out, and, as for the disposable diaper 10, they are carrying out the sandglass type with which the center by the side of a rectangular long side became depressed in general, as for the appearance. While it becomes a crotch 14, and this hollow portion stands in a row in this crotch 14 and is large, it is the back 11 and another side is the venter section 13. The firm attachment tape 12 is formed near the nose of cam of piece of both wings 11a of the above-mentioned back 11.

[0005] the piece 15 of male side engagement of a field fastener attaches this firm attachment tape 12 on the base-material sheet 17 which consists of a polypropylene-polyethylene complex film (film which carried out the laminating and

performed \*\*\*\*\* so that a polyethylene film might be inserted with the polypropylene film of two sheets) — having — the base-material sheet 17 — on the other hand, the amount of edge gathers, and it is set to section 17b, and is set to attachment section 17a with the main part of a diaper (the near nose of cam of piece of wings 11a In addition, as the above-mentioned base-material sheet 17, the film made from a polyethylene terephthalate besides the above-mentioned polypropylene-polyethylene complex film etc. is used.

[0006] The above-mentioned piece 15 of male side engagement and the piece 16 of female side engagement which can be engaged are formed in the erect-figure side (lateral surface) of the above-mentioned venter section 13 of the disposable diaper 10, and it can wear now by engaging the above-mentioned piece 15 of male side engagement with this piece 16 of female side engagement. In addition, the piece of engagement which planted the piece of engagement which planted the hook type engagement element as the above-mentioned piece 15 of male side engagement, and the mushroom type engagement element is mentioned, and the piece of looping engagement etc. is mentioned as a piece 16 of female side engagement.

[0007] Drawing 9 is a plan for explaining the manufacture method of the conventional above-mentioned firm attachment tape 12.

[0008] The piece of male side engagement thin belt 25 of the cross direction almost long and slender to a mid gear is first pasted up on the long film 28 made from polypropylene (double width band form). Subsequently, it cuts along with the cutting plane line 27 which moved in a zigzag direction so that it might build over this piece of male side engagement thin belt 25, and divides into right and left. And it cuts along with the crosswise cutting plane line 26, and considers as each firm attachment tape 12 which has the piece 15 of male side [ two ] engagement.

[0009]

[Problem(s) to be Solved by the Invention] By the way, in manufacture of the above-mentioned firm attachment tape, although a production-line top is progressed continuously and installation, cutting, etc. of the piece of male side engagement are performed, when the engagement side of the above-mentioned piece of male side engagement thin belt 25 (piece 15 of male side engagement) is in an exposure state in this case, this engagement side is caught in a manufacture machine etc., and a possibility that it may become impossible to realize a smooth manufacture flow is.

[0010] Moreover, also in the manufacture process of the above-mentioned disposable diaper, if it progresses continuously, anchoring of various parts, folding, etc. are performed and the engagement side of the above-mentioned piece 15 of male side engagement is in an exposure state in this case, a production-line top This engagement side is caught in other parts of a manufacture machine or a diaper like the above, there is a possibility that a smooth manufacture flow may be unrealizable, and there is concern which produces the accident which involves a diaper in a manufacture machine further.

[0011] Then, the adhesives for [ tacking ] are applied near the above-mentioned

piece of male side engagement, the above-mentioned piece of male side engagement is carried out inside, and is folded up, and the technique of carrying out temporary adhesion with the above-mentioned adhesives for [ tacking ] is proposed. In this case, since the engagement side of the piece 15 of male side engagement is not exposed, the accident in which this engagement side is caught in a manufacture machine etc. is prevented.

[0012] However, there is a problem that the process which applies the adhesives for [ tacking ] beforehand is newly required in carrying out by stopping temporarily like \*\*\*\*, and a manufacturing process becomes complicated for the reason, and cost also starts.

[0013] Then, in this invention, the engagement side of the piece of male side engagement is not caught in a manufacture machine etc., but smooth manufacture is possible, and a manufacturing process is not complicated, and it aims at offering the firm attachment tape which seldom requires a manufacturing cost, and its manufacture method. In addition, it aims at offering the disposable diaper using this firm attachment tape.

[0014]

[Means for Solving the Problem] The firm attachment tape concerning this invention makes it a summary for the aforementioned base-material sheet to have at least the nonwoven fabric which can engage with the aforementioned piece of male side engagement to the aforementioned cuff field in the firm attachment tape of a base-material sheet which was formed in the edge on the other hand and which the piece of male side engagement of a field fastener was prepared in the piece by return, and equipped the other side of the aforementioned base-material sheet with the attachment section to other parts.

[0015] The manufacture method of the firm attachment tape concerning this invention to moreover, the double width band form of a nonwoven fabric or the double width band form of the multilayer sheet which carried out the laminating of a film and the nonwoven fabric The process which sticks the field of an opposite side on a crosswise center section for the thin belt of the piece of male side engagement of a field fastener along with the longitudinal direction of the aforementioned double width band form with the engagement side, The process which forms a piece by return by cutting along with the continuous thin with zigzags of an amplitude longer than the aforementioned piece of male side engagement thin belt attachment width of face, The piece formation side of male side engagement is carried out inside, and let it be a summary to have the process which turns up the aforementioned piece of a cuff and engages with a nonwoven fabric, and the process which cuts the separated double width band form at arbitrary intervals to a longitudinal direction.

[0016] Thus, temporary engagement of the piece of male side engagement is carried out by return at the nonwoven fabric (nonwoven fabric of the base-material sheet between the piece of male side engagement, and the attachment section) of a field. It does not arise that the engagement side of the piece of male side engagement is

caught in a manufacture machine since it will be in the state where the engagement side of the piece of male side engagement is not exposed etc., but therefore a smooth manufacture flow can be realized, and since the process which applies the adhesives for [ tacking ] in addition is unnecessary, manufacture becomes easy.

[0017] The thing which carried out the laminating of what consisted of nonwoven fabric independent, a nonwoven fabric, other films, etc. as the above-mentioned base-material sheet, the thing constituted by carrying out the laminating of the nonwoven fabric to both sides on both sides of the film are mentioned.

[0018] Among these, since a nonwoven fabric independent base-material sheet shows good permeability, it is [ but ] effective in preventing \*\*\*\*. Since permeability was bad if it was in some which used the polypropylene-polyethylene complex film etc. for the base-material sheet like the former on the other hand, when it was used, for example for a disposable diaper as mentioned above, there was concern to which a firm attachment tape portion is steamed. Although it is possible to use for a base-material sheet the breathable film which prepared two or more holes for the purpose which prevents \*\*\*\*\*, there is concern to which there is no chewiness in the above-mentioned breathable film not much when becoming expensive, if the above-mentioned breathable film is used, it is too soft and manufacture becomes difficult.

[0019] Moreover, in the above-mentioned firm attachment tape, it is desirable that the nonwoven fabric which can engage with the aforementioned piece of male side engagement is exposed to the piece forming face of anti-male side engagement of the aforementioned base-material sheet (namely, field of the direction in which the piece of male side engagement is not prepared).

[0020] For example, when a user is too thin and a firm attachment tape on either side crosses [ in using a firm attachment tape for a disposable diaper as following ] in wearing this diaper since it is also possible to engage an upper firm attachment tape with the above-mentioned nonwoven fabric in the erect-figure side of a lower firm attachment tape if this firm attachment tape is used although one pair of firm attachment tapes are generally prepared in right and left of the backside of a diaper, a firm attachment tape can be stopped appropriately.

[0021] Furthermore, in the firm attachment tape concerning this invention, the aforementioned nonwoven fabric consists of a polyester system synthetic fiber, and it is desirable that eyes are 30 - 100 g/m<sup>2</sup>.

[0022] the film made from polypropylene of the above-mentioned former [ sheet / base-material ], and the above — although a base-material sheet is too flexible, and there is a possibility of producing torsion and distortion, in the case of the film which has a hole, and a very thin nonwoven fabric in case a piece is turned up by return for this reason, there is little concern which produces torsion and distortion as mentioned above in the case of the nonwoven fabric made from a polyester system synthetic fiber of eyes 30 - 100 g/m<sup>2</sup> since it has moderate rigidity ( They are two or more 50 g/m and two or less 70 g/m more preferably as eyes of the above-mentioned nonwoven fabric.

[0023] In addition, in the firm attachment tape concerning this invention, it is desirable that a folding line with the nonwoven fabric parallel to the cuff line of the aforementioned piece of a cuff prepared in the aforementioned cuff field is formed. In addition, the linear heat weld section which intersects perpendicularly with a line by return with the above "a fold-up line" so that it may mention later is formed in the shape of a stair. and the line of the shape of this stair — the group of the heat weld section — the above-mentioned cuff line — being parallel — two or more \*\*\*\* beam case — this line — heat weld \*\*\*\* and a line — between heat weld \*\*\*\* (i.e., the above) — a line, although the field (refer to A of drawing 1 (b), B, and C—) which the heat weld section does not overlap is formed in a line and parallel by return This portion (A of drawing 1 (b), B, C—) etc. is said.

[0024] Thus, by forming the fold-up line beforehand, it is because it is smoothly foldable by the position in hiding the engagement side of the piece of male side engagement.

[0025] moreover, the line of the direction which the aforementioned nonwoven fabric consists of heat weld nature fiber, and leaves the aforementioned folding line to this nonwoven fabric, and intersects perpendicularly with this folding line in the firm attachment tape concerning this invention — it is desirable that the heat weld section is prepared in the shape of a stair

[0026] the above — a line — since the heat weld section is hard compared with the portion by which heat weld is not carried out, it will break with the adjoining non-heat weld section, without breaking with this heat weld section That is, the direction of the folding line which is the non-heat weld section will be in the state of being easy to break rather than other portions, and, therefore, can fold up smoothly by part for this folding line part.

[0027] Moreover, the disposable diaper concerning this invention makes it a summary to prepare the aforementioned firm attachment tape in the backside or venter of a couple and a diaper.

[0028]

[Embodiments of the Invention] (a) and drawing 2 of drawing 1 are the front view for explaining an example of the manufacture method of the firm attachment tape concerning this invention, and (b) of drawing 1 is the expansion front view of a base-material sheet. Moreover, drawing 3 is the X-X line cross section shown in drawing 1 (a), and drawing 4 is a Y-Y line cross section shown in drawing 2 .

[0029] the line of the direction which intersects perpendicularly with a longitudinal direction by eyes 60 g/m<sup>2</sup> at this nonwoven fabric double width band form 38, using the double width band form 38 of the long nonwoven fabric made from a polyester system synthetic fiber as an original fabric of a base-material sheet — the heat weld section 40 is formed in the shape of a stair the line of the shape of this stair — as shown in (b) of drawing 1 , it stands in a row crosswise [ of the above-mentioned double width band form 38 ], and two or more groups formation of a group (40a, 40b, 40c—) of the heat weld section 40 is carried out In addition, the above-mentioned



nonwoven fabric double width band form 38 is equipped with the loop to which the both sides can engage with the piece of male side engagement.

[0030] The piece of male side engagement thin belt 25 long and slender in the crosswise center section is stuck with adhesives on this nonwoven fabric double width band form 38. Moreover, hot melt adhesive is applied near the ends of the nonwoven fabric double width band form 38, and it is referred to as attachment section 37a with other parts. In addition, 31 in drawing 3 and 4 and 33 are adhesives layers.

[0031] Subsequently, along with the cutting plane line (continuous thin with zigzags) 27 which moves in a zigzag direction with an amplitude longer than the attachment width of face of the thin belt 25, it cuts so that it may build over this piece of male side engagement thin belt 25 (piece 15 of male side engagement) ( drawing 1 (a)). The nonwoven fabric between the piece 15 of the Hisao side engagement and attachment section 37a (base-material sheet) is set to temporary engagement part (cuff field) 37c. Moreover, a previous nonwoven fabric (base-material sheet) portion gathers from the piece 15 of male side engagement, and it is section 37b.

[0032] the account of Gokami -- a line -- among each groups 40a and 40b of the heat weld section 40, and the folding line between 40c-- (A and B which are shown according to a two-dot chain line, C--), the piece 15 of male side engagement is carried out inside, arbitrary folding lines [ near the root of the above-mentioned piece of male side engagement 15 attachment portion ] fold it up, and temporary engagement of this piece 15 of male side engagement is carried out at the nonwoven fabric of

[0033] the time of this folding -- a line -- since the heat weld section 40 is hard compared with the portion by which heat weld is not carried out -- this line -- in the part of the heat weld section 40, it will not break, but it will break with the comparatively soft folding lines A and B and C--, and will be folded Since it is formed in the shape of a straight line while the piece 15 of male side engagement and attachment section 37a counter, these folding lines A and B and C-- are smoothly foldable along with these folding lines A and B and C-- . In addition, it can be chosen [ of these folding lines A and B and C-- ] by changing the guide position applied to the band form 38 it runs in inner any it folds up.

[0034] Subsequently, it cuts along with the crosswise cutting plane line 26, and considers as each firm attachment tape 32 which has the piece 15 of male side [ two ] engagement.

[0035] As mentioned above, since it is folded up immediately after a cutting plane line 27 cuts, and the engagement side of the piece 15 of male side engagement hides, a possibility of the piece 15 of male side engagement that an engagement side may be caught in a manufacture machine etc. disappears. Moreover, the piece 15 of male side engagement is caught in the nonwoven fabric of temporary engagement part 37c, and since temporary engagement is carried out, by the vibration or the wind in manufacture processes, it does not separate from this temporary engagement.

[0036] In addition, since the width of face of a firm attachment tape becomes narrow by folding up as mentioned above, from this, the manufacture space of a downstream can become small and curtailment of facility installation space can also be aimed at.

[0037] Drawing 5 is the part plan showing the disposable diaper furnished with the above-mentioned firm attachment tape 32, and is drawing which made the near side near piece of wings 11a on the left-hand side of the back 11, and expressed the body side (field of the side which touches the body) of a diaper. Moreover, drawing 6 is the front view showing the state where this disposable diaper was worn. in addition, drawing 1 – the sign same about the same component as 4 and 8 is attached, and duplication explanation is avoided

[0038] Among the manufacture process of a disposable diaper, in case the laminating of the top sheet 23 and the backseat 21 is carried out, as attachment section 37a of the above-mentioned firm attachment tape 32 is inserted among these sheets 23 and 21, it is arranged, it pastes up with the hot melt adhesive applied beforehand, or it replaces with these adhesives and pastes up by ultrasonic bonding or heat embossing adhesion.

[0039] Since the engagement side of the piece of male side engagement has not exposed the above-mentioned firm attachment tape 32 during manufacture of a disposable diaper, there is no concern caught in a manufacture machine, the parts of a diaper, etc. Therefore, smooth manufacture is realizable.

[0040] In wear of a disposable diaper, knob section 37c is gathered, the temporary engagement to temporary engagement part 37c of the piece 15 of male side engagement is removed, and it wears by engaging with the piece 16 of female side engagement of the diaper venter section 13.

[0041] A base-material sheet consists of nonwoven fabrics, and since permeability is good, even if the firm attachment tape 32 is the case where the large-sized firm attachment tape 32 is used, it does not not much have being steamed during wear, and can be worn comfortably. Moreover, if the temporary engagement to temporary engagement part 37c is removed just before the operation which engages the piece 15 of male side engagement with the piece 16 of female side engagement, it can prevent that the engagement side of the piece 15 of male side engagement is caught in other clothes portions etc.

[0042] Drawing 7 is the front view showing the case where narrow people wear the above-mentioned disposable diaper. Thus, in the case of narrow people, the firm attachment tape 32 will cross by the abdomen side, and can engage the piece 15 of male side engagement with the above-mentioned piece 16 of female side engagement. However, since the base-material sheet (nonwoven fabric 38) of the above-mentioned firm attachment tape 32 can engage also with the erect-figure side (field of the direction which the piece of male side engagement is not sticking) at the piece of male side engagement, even if the firm attachment tape 32 crosses, it can engage with the erect-figure side of the firm attachment tape 32 which

counters, and becomes possible [wearing therefore].

[0043] Although explained concretely, referring to the drawing in which an example is shown about the disposable diaper using the firm attachment tape applied to this invention as mentioned above, its manufacture method, and this firm attachment tape, this invention is not necessarily limited to the example of illustration from the first, it is also possible to add and carry out change suitably in the range which may suit the aforementioned meaning, and each of them is included by the technical range of this invention.

[0044]

[Effect of the Invention] The engagement side of the piece of male side engagement of a firm attachment tape is not caught in a manufacture machine etc., but smooth manufacture is possible for the firm attachment tape concerning this invention, and its manufacture method, and moreover they are not complicated, and seldom require a manufacturing cost. [of a manufacturing process]

[0045] Moreover, since the engagement side of a firm attachment tape is not exposed during manufacture of this diaper, the disposable diaper concerning this invention does not have the concern caught in a manufacture machine, the parts of a diaper, etc., and can be manufactured smoothly.

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[Translation done.]

**\* NOTICES \***

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2. \*\*\*\* shows the word which can not be translated.
3. In the drawings, any words are not translated.

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## DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1] (a) The front view for explaining an example of the manufacture method of the firm attachment tape concerning this invention and (b) are the expansion front view of a base-material sheet.

[Drawing 2] Front view for explaining an example of the manufacture method of the firm attachment tape concerning this invention.

[Drawing 3] The X-X line cross section shown in drawing 1 (a).

[Drawing 4] The Y-Y line cross section shown in drawing 2 .

[Drawing 5] The part plan showing the disposable diaper furnished with the firm attachment tape concerning an example of this invention.

[Drawing 6] Front view showing the state where the disposable diaper shown in drawing 5 was worn.

[Drawing 7] Front view showing the case where narrow people wear the disposable diaper shown in drawing 5 .

[Drawing 8] For (a), (b) is the expansion plan showing an example of a disposable diaper which used the conventional firm attachment tape, and the front view showing an example of the conventional firm attachment tape.

[Drawing 9] The plan for explaining the manufacture method of the conventional firm attachment tape.

[Description of Notations]

11 Back

11a The piece of wings

13 Venter Section

15 Piece of Male Side Engagement

16 Piece of Female Side Engagement

21 Backseat

22 Absorber

23 Top Sheet

25 Piece of Male Side Engagement Thin Belt

26 27 Cutting plane line

31 33 Adhesives layer

32 Firm Attachment Tape

37a Attachment section

37b Knob section

37c Temporary engagement part

38 Nonwoven Fabric Double Width Band Form

40 Line -- Heat Weld Section

40a, 40b, and 40c a line -- heat weld \*\*\*\*

A, B, C Fold-up line

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[Translation done.]

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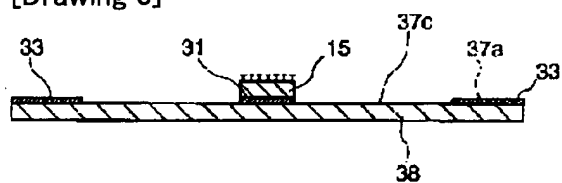
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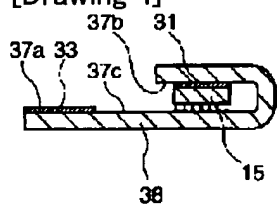
## DRAWINGS

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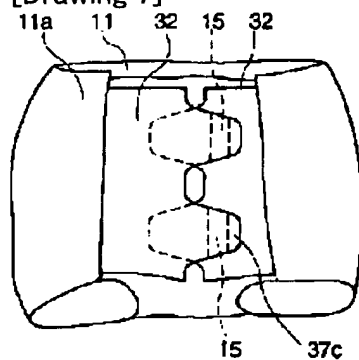
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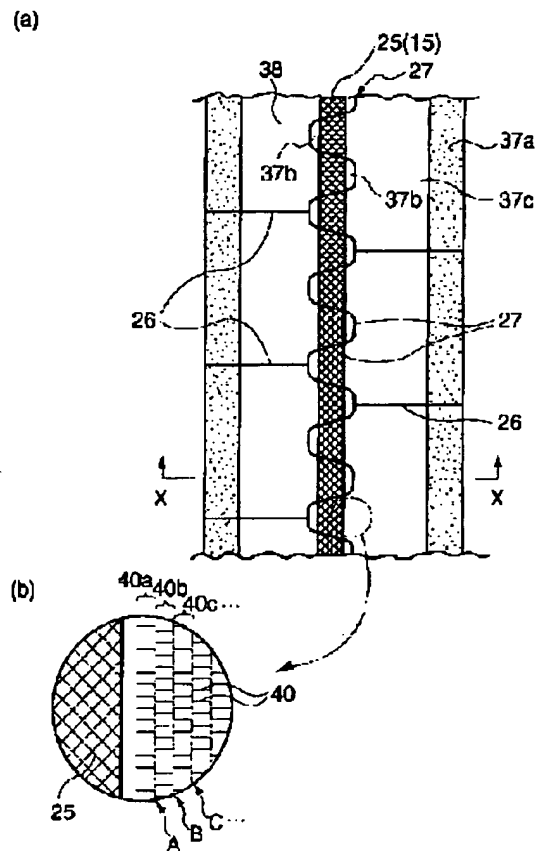
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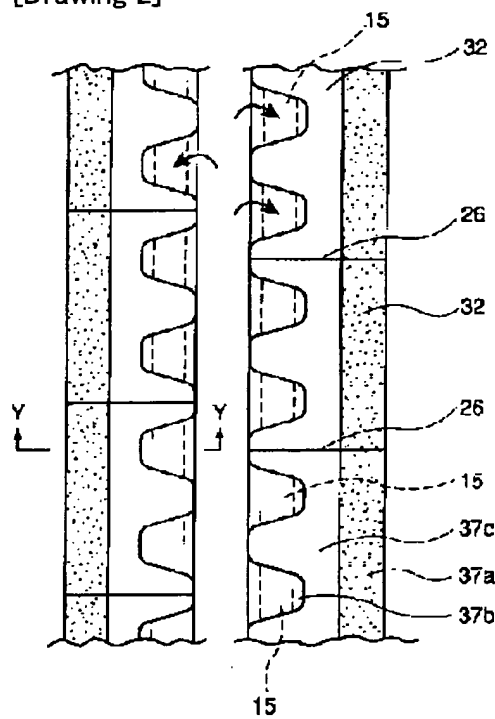
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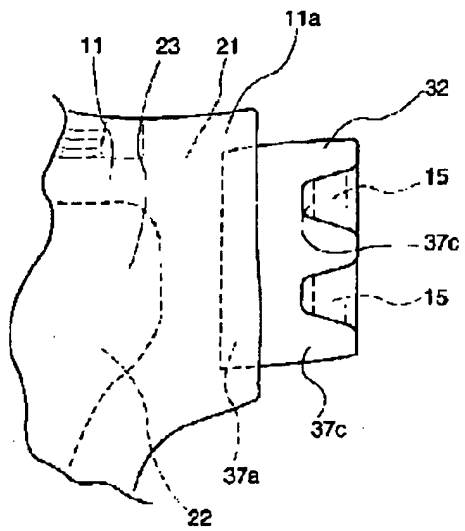
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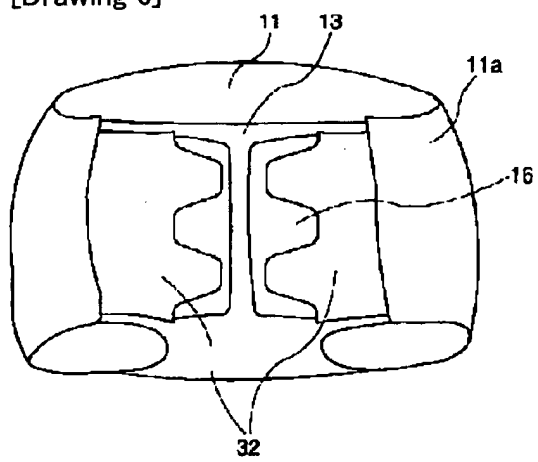
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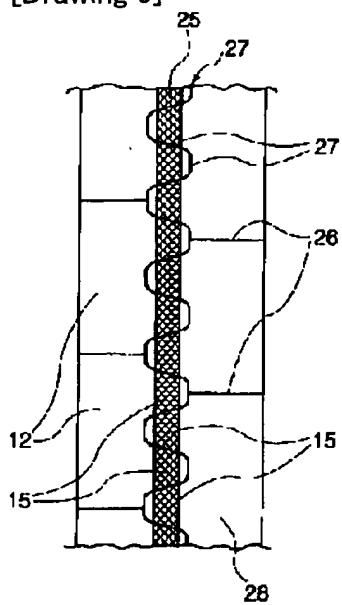
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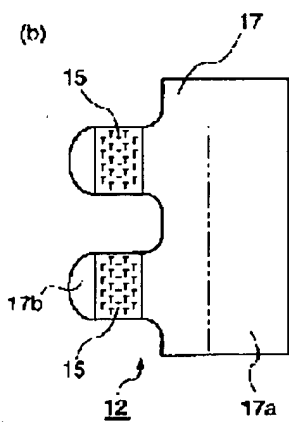
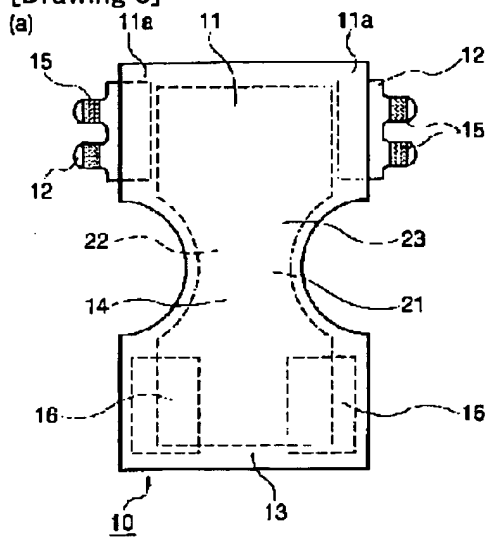
[Drawing 6]



[Drawing 9]



[Drawing 8]



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[Translation done.]